appearance of the third generation, about March, 1942. The possibility that only two generations may occur during the season 1941-42 should not be overlooked; in case this happens the outbreak is expected to occur during the first half of the season 1942-43. Unless conditions unfavourable for the increase of the brown locust intervene, the latter period must be regarded as the latest during which general incipient outbreaks should be expected.

Acknowledgments.

The writer is indebted to several of his colleagues and to various district locust officers for data on population densities and material supplied. He is especially grateful to Professor J. C. Faure for guidance and for editing this paper, and to Mr. C. du Plessis, for advice and criticism.

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On some new species and two new genera of Coccidae (Homoptera) from Southern Rhodesia.

by

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Ten short papers dealing with the Coccidae of Southern Rhodesia have been published at intervals during the past thirteen years* in the course of which 171 species have either been described or recorded. New species and species not previously recorded from this Colony continue to be collected from time to time and the present short paper deals with ten such species for two of which new genera are erected.

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*1928, Bull. Ent. Res. 19:271-292; 1929, Bull. Ent. Res. 20:345-358, 359-376; 1931, Trans. Ent. Soc. London, 79:285-303; 1932, Stylops, 1:185-195; 1935, Stylops, 4:73-84, 217-226; 1935, Bull. Ent. Res. 26:475-486; 1937, Trans. R. Ent. Soc. London, 86:119-134; 1940, Trans. R. Ent. Soc. London, 90:487-496.

I am indebted to Miss A. L. Bacon, formerly of the Department of Agriculture, Salisbury, for very kindly identifying many of the host plants referred to in this paper and to Dr. G. R. Bates of the Citrus Experimental Station, Mazoe, for the photographs reproduced in text figure 7.

Chortinaspis inyangae sp.n. (Fig. 1).

Puparium of the adult female very dark grey, almost black, coated with a thin semitransparent greyish secretionary film which shows as a narrow pale area marginally and in some cases gives a somewhat frosted appearance to the dorsal scale. The puparium is highly convex and oval or subcircular but the shape is often distorted on account of the hairy nature of the host plant. Exuvia within the margin but not central, golden in colour and covered with a thin white secretionary film. Ventral scale thin but somewhat tough, in some cases coming away entire with the dorsal scale, in others partially adherent to the dorsal scale round the margin, whilst in others it remains as a white film on the host plant.

Diameter of female puparium, 1.25-1.50 mm.

Male puparium resembling that of the female in colour and texture but elongate oval with the exuvium at one end.

Adult female broadly oval, dermis membranous with the exception of the pygidium. No parastigmatic pores associated with either anterior or posterior spiracles. Pygidium triangular with median lobes well developed, these are as broad at the base as they are long, tapering somewhat with the apices truncate or broadly rounded and tending to fall away laterally. First lateral lobes much smaller than the median lobes and of the same general form; other lobes wanting. Two small plates occur between the median lobes but they do not extend beyond them. Beyond the first lateral lobes there is a series of some 14 long and conspicuous plates. Two to five similar plates are also found marginally of the 4th abdominal segment. One to three relatively small pores occur between the median lobes, two more between the median and first lateral lobes, whilst beyond the latter several pores are found marginally as far as the last plate. Dorsal pores with relatively short and slender ducts, of much the same size as those in the marginal area, scattered, with a tendency to be arranged in two series. Similar pores are scattered in the marginal and submarginal areas of the abdominal segments and the metanotum. Anal orifice situated near the apex of the pygidium not more than its length from the base of the median lobes. Vaginal opening flanked by a pair of elongated chitinised areas. Circumgenital glands wanting.

On an unknown species of grass, Pungwe Falls, Inyanga, 30.x.37 and 14.x.39.

I am indebted to Prof. Ferris of Stanford University, California, for suggesting that this species might be assigned to his genus *Chortinaspis* and also for material of his *Chortinaspis chortina* — the type of the genus — for comparison. *Inyangae* differs from *chortina* chiefly in the greater number of dorsal and marginal pores and in the greater number of pygidial plates. All the species so far assigned to this genus have been grass infesting species; four have been described from North America and one, *C. bilobis* Mask. from China.

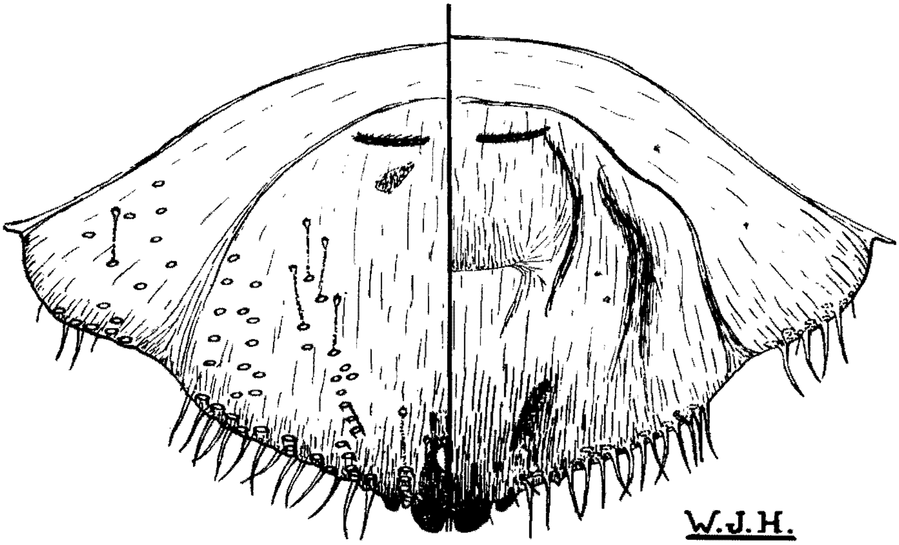

Fig. 1.—*Chortinaspis inyangae*, sp.n.: Pygidium of adult ♀, x 300.

Africaspis chipingae sp.n. (Fig. 2).

Puparium of adult female with the surface tissues of the bark so incorporated as to render it only distinguishable with difficulty. The inner surface of the dorsal scale is a dirty white overlaid with a chocolate or reddish brown layer whilst the exposed surface exhibits the texture and reddish brown, brown or greyish brown nature of the bark in its immediate vicinity. The puparium is elongate, much broadened posteriorly, with brown exuvia situated terminally; it is moderately convex and it is this convexity which enables the puparia to be detected. Ventral scale either not apparent or, if present, very poorly developed.

Length of puparium of adult female, 2.0-3.0 mm.; breadth, 1.0-1.5 mm.

Adult female elongate fusiform. Anterior spiracles with a group of some 12 parastigmatic glands. Pygidium markedly triangular. Median lobes large, highly chitinised and fused over their lower halves, they are roughly triangular in shape, rounded at the apex, with a deep notch on the outer margin. First lateral lobes highly chitinised, small and duplex, the inner lobule rounded the outer much smaller and angular; 2nd lateral lobes angular and rudimentary. Three pairs of conspicuous gland spines, each carrying a single microduct, occur at intervals between the 1st lateral lobes and base of the pygidium on either side and there is a similar but smaller spine between the median and 1st lateral lobes; it is probable that there are really two spines in the latter position as two microducts can be made out but not more than one spine has actually been seen. A marginal pore surrounded by a highly chitinised area occurs at the base of the 1st lateral lobe and a similar chitinised area at the base of the 2nd lateral lobes carries two pores. There is a chitinised spur marginally of the 5th abdominal segment, between the 2nd and 3rd pairs of gland spines; run-

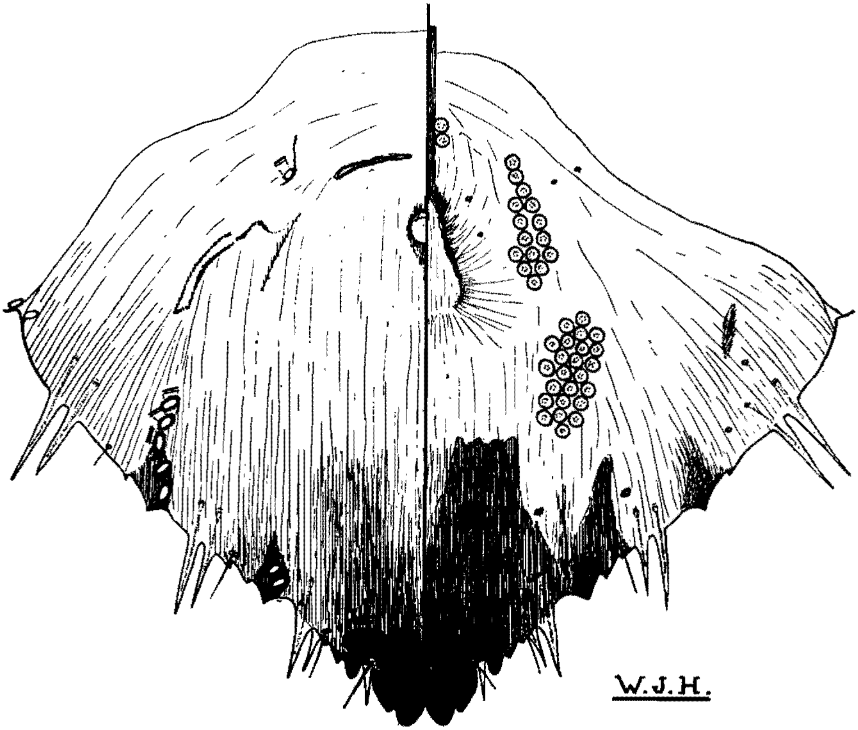

Fig. 2.— *Africaspis chipingae*, sp.n.: Pygidium of adult ♀, x 340.

ning inwards from this spur is a series of some 5 ducts the chitinisation from the spur extending to embrace usually three of these pores. Dorsal pores usually confined to a single pore on either side situated towards the base of the pygidium. Anal orifice towards the base of the pygidium. Circumgenital glands in 5 groups, median 5-7, anterior laterals 11-18, posterior laterals 16-24 (average of 15 examples 6:14:21). Prepygidial segments and metanotum with groups of gland spines and dorsal pores in the marginal region. The 3rd and 4th abdominal segments with a few pores at scattered intervals right across the segments.

On *Uapaca kirkiana* (Euphorbiaceae), Chipinga Mt. Selinda road, 30.vi.39. On the smaller branches.

This material was heavily infested by *Dinaspis mashonae* Hall. Preparations were made for microscopic examination and a single individual of *A. chipingae* was noticed. A careful examination of the material then revealed further specimens of this highly inconspicuous species. The male puparia present are believed to be those of *D. mashonae.*

This species comes close to *A. chionaspiformis* Newst. and *A. cassiae* Newst. from both of which it differs in the very much reduced number of the dorsal pores and the more triangular shape of the pygidium.

Macgillivray (The Coccidae, 1921, p. 307) erected the genus *Africaspis* to accommodate the two above-mentioned species, making the first named the genotype and this genus has subsequently been accepted by Ferris as a valid genus (Microentomology, Vol. 2, Part 3, p. 104, November, 1937).

Pinnaspis communis Hall and its varieties *berliniae*, *diospyros* and *monotes* all described from Southern Rhodesia should also be assigned to the genus *Africaspis.*

BANTUDIASPIS gen.n.

Diaspididae referable to the tribe Diaspidini, with "two-barred" ducts. Body oval, the cephalic portion may or may not tend to become sclerotised at maturity. Median lobes separated by a comparatively wide space, with a chitinous band joining their bases and also a dorsal macropore and two simple spines between their bases. Other lobes, if present, very poorly developed. All pygidial gland spines simple with a single microduct. Marginal pores four to six in number on either side of the median lobes usually associated with marginal projections; a single pore in a definite projection at the margin of the fourth segment is always present. Dorsal pores may be either the same size or smaller than the marginal pores. Similar pores are scattered over the abdominal segments but they are not very numerous. Anal orifice either about the middle of the pygidium or somewhat nearer the apex than the base. Circumgenital glands wanting. Male puparium unknown.

Genotype: *Howardia loranthi* Hall.

Howardia loranthi Hall and *Howardia rhusae* Hall (Bull. Ent. Res. 19: p. 279, 1928) and *Bantudiaspis faureae*, sp.n. are herewith assigned to the genus *Bantudiaspis* with the first named species as genotype. The three species included in the new genus are obviously closely allied and form a compact group which cannot be included in the genus *Howardia* as now understood.

The genus *Bantudiaspis* has some affinity to *Furchadiaspis*, from which it differs in the nature of the pygidial gland spines and the chitinous bar joining the bases of the median lobes, also in the nature of the median lobes and the absence of lateral lobes.

Bantudiaspis faureae sp.n. (Fig. 3).

Puparium of adult female small and comparatively delicate. It is subcircular, white in colour, with lemon yellow exuvia which are situated within the margin but to one side. The puparia are for the most part hidden beneath the surface tissues of the host plant and in some cases a little of these brownish tissues is incorporated in the dorsal scale. Ventral scale very thin and delicate. remaining attached to the host plant. The puparia are usually found massed together beneath loose pieces of surface tissue.

Diameter of puparium of adult female about 0.8 mm.

Adult female broadly oval, dermis membranous with the exception of the pygidium. Old individuals frequently with a distinct broad band of chitinisation round the entire anterior margin and extending down as far as the first abdominal segment on either

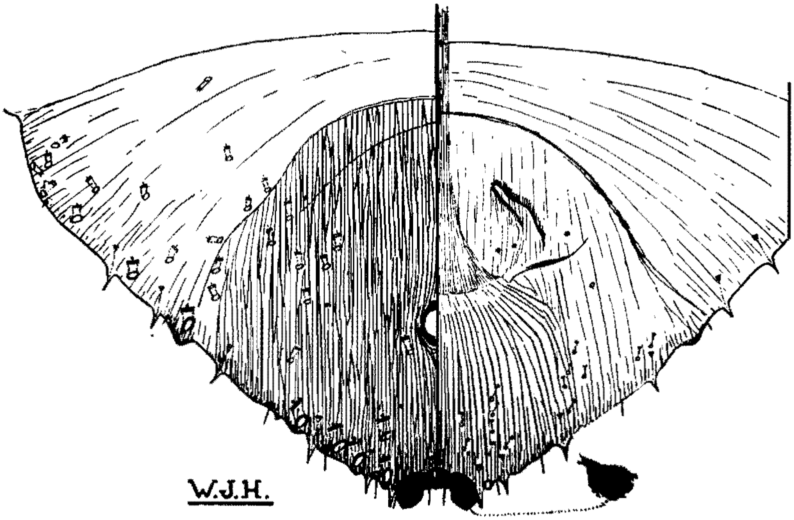

Fig. 3.—*Bantudiaspis faureae*, sp.n. Pygidium of adult ♀, x 340.

side. Anterior spiracles with 3 to 5 small and rather inconspicuous parastigmatic glands.

Pygidium with but a single pair of median lobes; these are comparatively small, rounded, with a faintly serrated edge and separated by a distance at least equal to the width of one. A band of chitinous tissue connects the bases of the median lobes and imbedded in it, between the lobes, is a marginal pore. Six gland spines occur on either side as shown in Figure 3. Two short setae occur between the median lobes and five or six marginal pores on either side of them. Dorsal pores comparatively few, scattered, and of a much smaller size than the marginal pores. Ventral dermis with scattered microducts. Anal orifice nearer to the apex than the base of the pygidium. Circumgenital glands wanting. Margin of prepygidial abdominal segments with a few small gland spines, pores and micropores.

On *Faurea speciosa* (Proteaceae), Melsetter, 29.vi.39. Two lots of material were collected on bushes some distance apart.

This species is very close to *Howardia loranthi* Hall and *H. rhusae* Hall and the three form a well defined group provision for which has now been made by the erection of the new genus *Bantudiaspis*. *Faureae* differs from both *loranthi* and *rhusae* in having fewer dorsal pores on the pygidium, and those of a size markedly smaller than the marginal pores.

Dinaspis kirkianae sp.n. (Fig. 4).

Puparium of adult female, dirty white in colour, elongate, broadened posteriorly and very highly convex. First exuvium very pale, almost colourless, with a brownish tinge at the posterior extremity; second exuvium reddish brown. Ventral scale thin and delicate, the greater part remaining attached to the host plant but the marginal region often coming away with the dorsal scale.

Male puparium, with exuvium as in the female, small and white with subparallel sides. Median carina usually present, in most examples it is well developed whereas in others it is apparently absent altogether.

Length of puparium of adult female, 1.5-2.00 mm.; breadth, 0.50-0.90 mm.

Adult female with membranous dermis, more or less oval in mounted specimens. Anterior spiracles with usually two parastigmatic glands. Pygidium broadly rounded. Median lobes broad and very squat, separated by a V-shaped notch; they are highly chitinised, sometimes with a very faintly serrated edge, and with a definite band of chitin uniting their bases. First and second lateral lobes duplex but small and inconspicuous. Gland spines in pairs occur as shown in the figure, the two spines comprising each pair being of unequal sizes. Marginal pores associated with projections of the margin occur between the median and 1st lateral lobe, between the 1st and 2nd lateral lobes and beyond the 2nd lateral

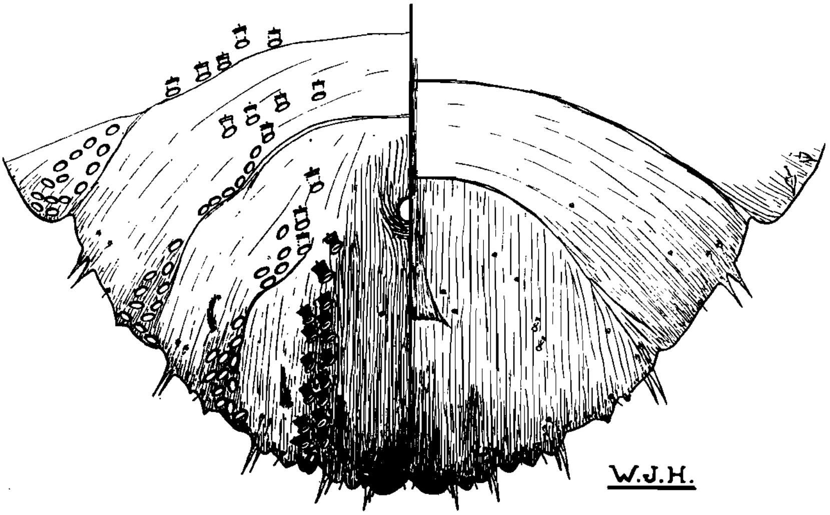

Fig. 4.—*Dinaspis kirkianae*, sp.n.: Pygidium of adult ♀, x 225.

lobes on either side. Dorsal pores with comparatively short ducts, numerous and conspicuous; the pores are arranged in definite series, the innermost series is only broken in the median region whilst the others are broken between the median line and the margin as well. Anal orifice situated somewhat nearer to the base than the apex of the pygidium. Circumgenital glands wanting.

Marginal region of prepygidial segments with a few pores and two or three gland spines, these extend in decreasing numbers as far as the anterior spiracles. Margin of frontal region with scattered short setae at wide intervals.

On *Uapaca kirkiana* (Euphorbiaceae), Melsetter, 28.vi.39. The female puparia lay close along the ribs, chiefly the midrib, on the lower surface of the leaves whilst the male puparia were scattered over the whole lower surface of the leaves.

This species comes close to *Dinaspis dura* Newst. and *D. mashonae* Hall, particularly the latter, both from Uapaca. It differs from both in the squat nature of the median lobes; from the former in the greater number of dorsal pores on the pygidium and from the latter in the smaller number of gland spines on the 5th abdominal segment. Old adult females are globose and in view of the delicate nature of the dermis it is not easy to get a preparation in which the insect lies satisfactorily; it is easier with younger individuals.

Epidiaspis ficifoliae sp.n. (Fig. 5).

Puparia of the adult females so covered with extraneous matter that they are with difficulty distinguished from the bark of the host plant. Apparently they are broadly oval to subcircular and pale brown overlaid with a comparatively thick coating of whitish secretionary matter which is obscured by brown extraneous matter. Exuvia either marginal or very near the margin and brown in colour. Ventral scale white and thin remaining attached to the host plant with the exception of the marginal portion which usually comes away with the dorsal scale when it is removed.

Male puparia elongate with parallel sides, white tinged with brown and with a golden yellow exuvium. They are faintly tricarinate and scattered indiscriminately all over the infested twigs.

Diameter of puparium of adult female, 1.25 mm.

Adult female broadly oval with dermis membranous except for the pygidium. Anterior spiracles with a group of 2-5 comparatively small parastigmatic glands. Pygidium triangular with anal orifice situated rather nearer to the apex than the base. Median lobes triangular, rounded at the apex, with usually one conspicuous notch on the inner and two on the outer edge; with three chitinous bars at the base in the form of an inverted three pronged fork. The lobes are separated by a distance rather less than half the width of one and two short setae are situated in the space between them. Only the first lateral lobes are distinguishable and they are small and triangular but rounded at the apex. At about 1/3 and 1/2 way between the median lobes and the base of the pygidium small spurs occur on either side which are conspicuous on account of their dense chitinisation. Three stout setae arise

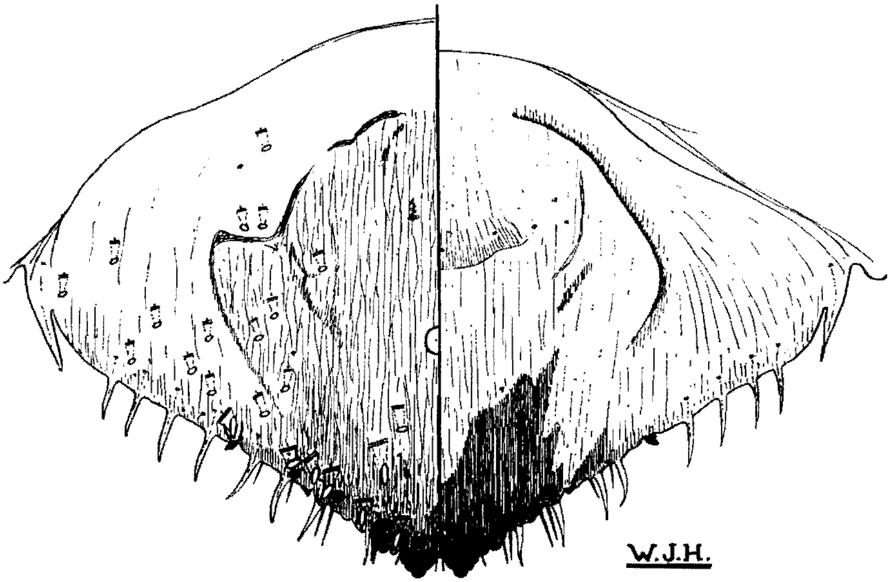

Fig. 5.—*Epidiaspis ficifoliae*, sp.n.: Pygidium of adult ♀, x 340.

from strongly chitinised areas between the median lobes and the second lateral spurs. About eight conspicuous gland spines, each with a single microduct, occur on either side the one towards the extreme base of the pygidium being the largest and most conspicuous. A large pore occurs between the median lobes and six similar pores are found marginally between the median lobes and second lateral spur. Dorsal pores comparatively few and of a smaller size than the marginal pores with the exception of a pair situated behind the first lateral lobes, one on either side well within the margin; these pores are orientated longitudinally and are consistent in size and position in all specimens. Vaginal orifice situated slightly nearer the base than the apex of the pygidium and somewhat inconspicuous. Circumgenital glands wanting. Prepygidial abdominal segments with a few pores and gland spines which become progressively less anteriorly.

On *Ficus* sp. (Moraceae), the smaller branches, the Acropolis, Zimbabwe, 13.vi.37.

I am indebted to Prof. Ferris for pointing out the correct generic position of this species and also for material of *Epidiaspis leperii* Sign., the genotype. This species bears a strong resemblance to some of the species from America assigned to this genus by Ferris and particularly to *leperii* Sign. and *baccharidis* Ckll., from both of which it differs in having no circumgenital glands, and in several details of the pygidial structure.

Furchadiaspis rhusae (Brain).

Diaspis rhusae Brain, 1919, Cocc. South Africa, Bull. Ent. Res., Vol. IX, p. 225.

On *Cussonia spicata* (Araliaceae), Melsetter, 29.vi.39. Situated chiefly beneath the bracts at the growing point.

This species was originally described by Brain from material collected on a native bush (*Rhus* sp.) at Rondebosch, Cape Province. Rhodesian specimens have been compared with what is believed to be part of the type material of *rhusae* and they appear to be identical.

F. rhusae comes very close to *F. zamiae* Morgan from which it differs only in the following respects:

1. The two gland spines between the median lobes are simple and not bifurcate or fimbriate as in *zamiae*.
2. The median lobes are recessed and do not as a rule extend as far as the 1st lateral lobes and certainly never beyond them.
3. The median lobes are relatively smaller and only inconspicuously serrated.

F. rhusae is so close to *zamiae* that I have no hesitation in removing it from the genus *Diaspis* where it was originally placed and assigning it to the genus *Furchadiaspis*.

Poliaspis argentata sp.n. (Fig. 6).

Puparium of the adult female elongate, moderately convex and much broadened posteriorly. Exuvia orange, covered by a thin film of white secretionary matter. Secretionary appendix shiny silvery white and faintly but definitely transversely striated. The ventral scale remaining attached to the host plant with the exception of a narrow band which comes away attached to the margin of the dorsal scale.

Male puparium white, small and elongate with pale orange exuvium; no longitudinal carinae present.

Length of puparium of adult female, 3.0 mm.; breadth. 1.25 mm.

Adult female pyriform and membranous with the exception of the pygidial region. Antennae consisting of the usual small tubercles but carrying two rather unusually long, more or less straight, setae. Anterior spiracles with a group of 7-12 parastigmatic glands.

Pygidium broad and flatly rounded. Median lobes small, rounded, with faint notches on both inner and outer edges; they are widely separated with two minute setae between them. First lateral lobes duplex, rounded, the inner lobule being larger than the outer and larger than the median lobes. Other lobes wanting. A pore bearing projection occurs between the median and lateral lobes on either side. Dorsal pores with comparatively short ducts, in well defined series, run inwards from the margin, the inner series is not so clearly defined and regular as the others. Anal orifice nearer the base than the apex of the pygidium. Circumgenital

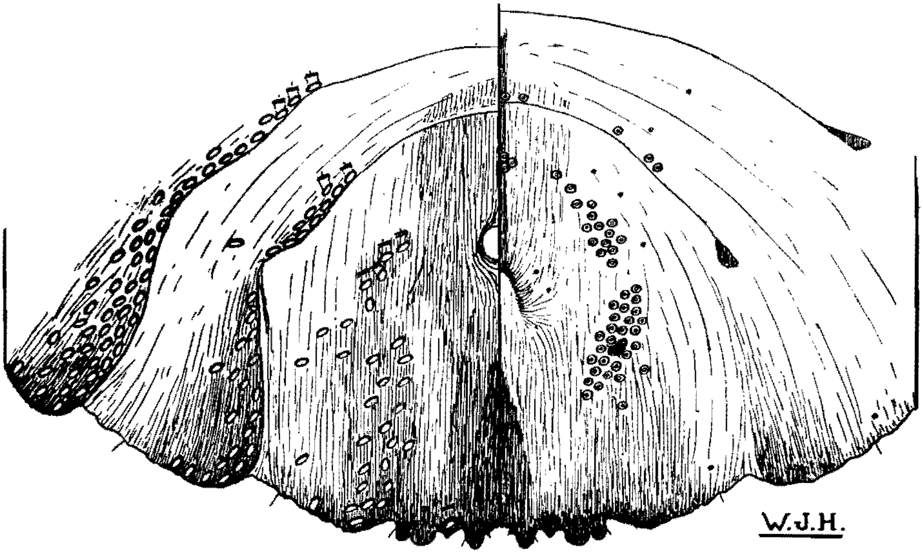

Fig. 6.—*Poliaspis argentata*, sp.n.: Pygidium of adult ♀, x 225.

glands in two series; inner series consisting of 5 groups, median 2-7, anterior laterals 13-22, posterior laterals 22-37 (average of 15 examples 5:15:30); outer series of three groups, median 2-5, anterior laterals 2-6, these groups are not always clearly demarked as the glands tend to be irregularly spaced in a single line. The groups of the inner series also, are not always compact and frequently one or more glands occur well separated from the main group. Gland spines apparently absent on the pygidial segments. Prepygidial segments as far as the anterior spiracles with groups of pores and a few gland spines in the marginal region which extend inwards for some distance.

On *Osyris abyssinica* (Santalaceae), Nyamaziwa Falls, Inyanga, 15.x.39; on the leaves.

This is a typical representative of the genus *Poliaspis*. It is clearly distinct from *P. carissae* Ckll. and *P. kiggelariae* Brain described from South Africa and from *kiggelariae* var. *allophylli* Hall described from Southern Rhodesia. In the nature of the pygidial fringe *argentata* comes close to *exocarpi* Mask. but unlike that species it has no gland spines in this region and the outer series of circumgenital glands is not in definite and well defined groups as in *exocarpi*.

Ceronema brachystegiae sp.n. (Fig. 7).

Ovisac of the adult female consisting of closely felted white secretionary matter; it is very highly convex and carries a series of radiating folds which project on to the dorsum of the female and give to the margin of that part of the dorsum of the female that is uncovered a markedly serrated outline. The adult female is very dark brown, almost black, broadly oval in outline and so tilted in old specimens as to stand at a very steep angle to the surface of the host plant (almost vertical in some instances) with only the anterior portion in contact with the host plant.

Length of the adult female, 10-12 mm.; breadth, 7-9 mm. Ovisac, length, 8-10 mm.; breadth, 8-10 mm.; height, 5-6 mm.

Adult female, broadly ovate, with relatively short and stout antennae consisting normally of 8 segments, of which the third is much the longest; the remaining segments do not vary greatly in length, the 8th being the longest and the 2nd and 7th subequal and the shortest. The 1st or basal segment is probably the shortest but it is difficult to ascertain its true length. In addition to the usual setae the 2nd and 5th segments each carry a single very long seta. In two examples there was no division between the 5th and 6th segments giving 7-segmented antennae but in practically all specimens the 3rd segment showed signs of partial division so that it is quite possible that 9-segmented antennae may occur.

Legs relatively small with coxae somewhat elongated and carrying two long setae in the distal area. Tarsus of the hind limb about 1/2 the length of the tibia which itself is very nearly as long as the combined lengths of the femur and trochanter. Tarsal digitules normal, claw stout with two digitules of unequal size, both are of the same length but one is very much stouter and conspicuously knobbed than the other.

Margin set with spines more or less uniformly spaced except towards the posterior extremity where they are closer together; these spines are stout, tapering towards their apices which are distinctly bifid, the two forks are of equal length and bluntly pointed at the apex. Stigmatic spines three in number, the median spine is long, stout, and bluntly pointed being five times the length of the marginal spines. Lateral spines similar to the median spine but smaller being rather less than half its length. Submarginal tubercles apparently wanting.

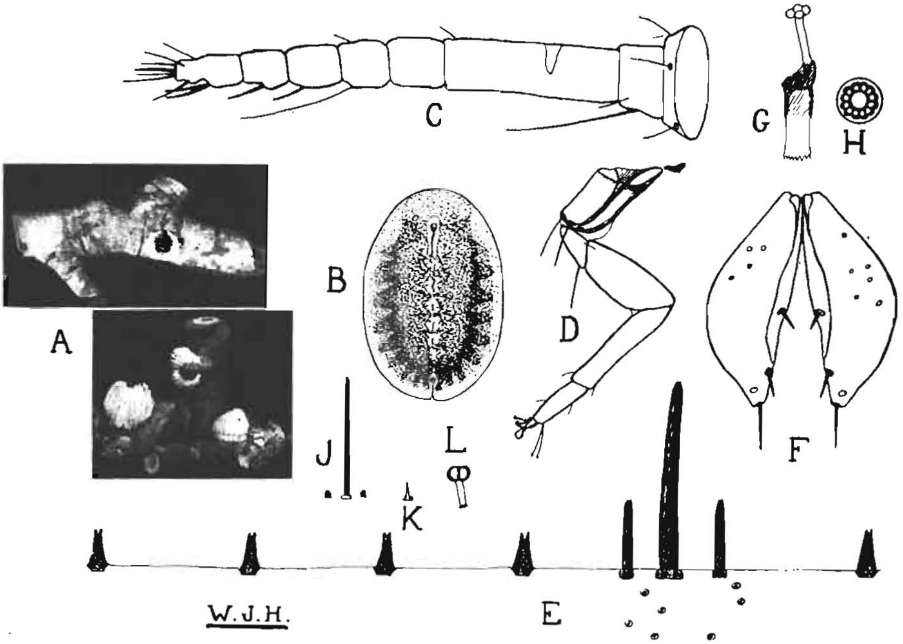

Fig. 7.—*Ceronema brachystegiae*, sp.n.: Adult ♀. A, adult females in situ, x ½; B, adult ♀, x 2.5; C, antenna, x 225; D, hindlimb, x 112; E, marginal and stigmatic spines, x 225; F, anal valves, x 112; G, tubular spinneret, x many times; H, multilocular pore, x many times.

Larva. J, stigmatic spines, x 225; K, marginal spine, x 225; L, bilocular pore, x many times.

Valves of the anal operculum with the outer angle broadly rounded, with a short rather stout blunted spine apically and two shorter and relatively stouter spines on the inner surface. There may be a further spine near the apex of the valve as, although no spine has been seen, the point of insertion is plainly apparent on all specimens. Towards the base of the valves a few small pores are scattered.

The central portion of the dermis is chitinised and has eight spurs on either side running out towards the margin but a band of hyaline tissue occurs round the margin. There are definite breaks in the chitinised tissue along a median longitudinal line giving the appearance of a median stripe. (Fig. 7B).

Marginal region of dermis with numerous tubular spinnerets of the form shown in figure 7G set in broadly oval or subcircular derm cells. These pores do not extend to any extent into the more heavily chitinised median area but they are most numerous in the angle of the protruding spurs. Multilocular pores of the type shown in figure 7H occur dorsally in the median area; they are most numerous in the vicinity of the anal valves. Dermis with a few scattered short stout spines.

Larva elongate with 6-segmented antennae of which the third is the longest with the 6th next longest and about 3/4 the length of the 3rd. Legs slender, tarsal digitules knobbed, one slender arising from the usual position and the other stouter and arising from a point further back is that much longer; the two ungual digitules are shorter than the tarsal pair but extend beyond the tip of the claw. Claw without denticle near the tip. Stigmatic spines in threes, the median spine is stout, bluntly rounded at the tip and long (between 55 and 60 μ in length), laterals very short indeed, little more than rounded knobs about 1/13 the length of the median spine. Marginal spines small but conspicuous, about 1/6 the length of the median stigmatic spines. Marginal tubular ducts wanting but four pairs of small ducts occur in a median row, two pairs behind the mouthparts on the thoracic region and two on the anterior abdominal segments. These ducts are unusual in that they have paired pore openings not unlike the 8-shaped pores of the Asterolecaniinae. Anal valves slender, carrying a very long apical seta 3/4 the length of the body, two very much shorter setae arise from the same vicinity and on the inner surface there are two much shorter but relatively stouter setae. Two pairs of submedian ventral setae anterior to the anal ring, the spines of the anterior of these two pairs are the shorter. Anal ring with pores and six setae.

On *Brachystegia* sp. (Leguminosae), Invanga, 6.xi.38 and 14.x.39; on the branches and thicker twigs. Also found in great numbers on *Cassia florida* trees (Leguminosae) on Livingstone Station, Northern Rhodesia, 1.xi.39. In this case the whole tree including the main trunk was covered with ovisacs. At Inyanga comparatively few specimens were found and rarely more than one was found on a tree at one time despite the conspicuous nature of the ovisacs.

There is no doubt that the Livingstone material is identical with that from Inyanga but the antennae tend to be shorter and the third segment is often swollen, sometimes very much swollen. Morrison (Proc. U.S. Nat. Mus. Vol. 60, Art. 12, p. 60, 1922) pointed out that *Ceronema africana* Macfie differed in morphological characters from the type of the genus and could hardly be included in it on such grounds. *Africana* Macfie, *koebeli* Green and possibly *japonica* Mask. seem to form a small group, to which *brachystegiae* may now be added, that should be removed from the genus *Ceronema*. For the time being, nevertheless, *brachystegiae* has been assigned to *Ceronema* until such time as a revision of that genus has been undertaken. *Brachystegiae* can be separated at once from *africana* and *koebeli* by the bifid nature of its marginal spines.

Pulvinaria syzygii sp.n. (Fig. 8).

Adult female large, elongate oval and green or brownish green in colour. Ovisac long, about four times as long as broad, with matted and comparatively smooth surface.

Length of adult female before gestation about 8.0 mm.; breadth, 3.5 mm.

Length of ovisac, 12-15 mm.; breadth, 3-4 mm.

Adult female elongate ovate with 8-segmented antennae; the length of the antennae varies rather more than usual in different individuals but the relative lengths of the segments remain more

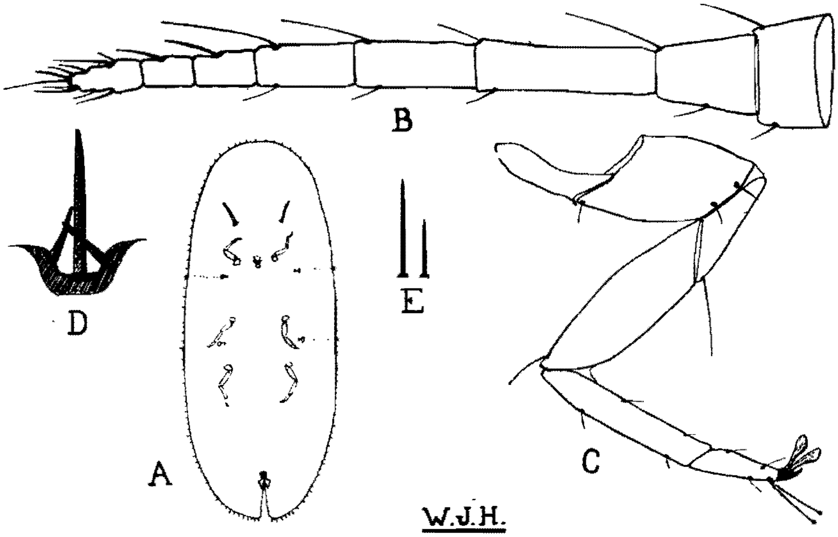

Fig. 8.—*Pulvinaria syzygii*, sp.n.: Adult ♀. A, adult ♀, x 7.5; B, antenna, x 225; C, hind limb, x 112; D, stigmatic cleft and spines, x 340; E, marginal spines, x 340.

or less constant. The 3rd is the longest segment with the 4th the next longest, the 2nd and 5th are subequal and slightly shorter than the 4th, the 8th is again slightly shorter than the 2nd and 5th, whilst the 7th is the shortest with the 6th very little longer. In two examples the division between the 4th and 5th segments was absent giving a 7-segmented antenna with the 4th segment very much the longest.

Legs relatively small considering the size of the insect, of normal form but with the outer edge of the trochanter less curved than usual. Tarsus rather more than half the length of the tibia. Tarsal digitules relatively stout, ungual digitules very much swollen apically.

Margin with rather stout setae set at wide and somewhat irregular intervals; these setae vary from 22 to 44 μ in length and are simple. Stigmatic cleft small but clearly defined being lined by a band of chitinous tissue; stigmatic spines three in number, the median spine is stout and blunt at the tip (about 50 μ in length), the lateral spines are much smaller, not so stout, but sometimes swollen at the base (about 20 μ in length). Usually three submarginal tubercles are present on either side.

Valves of the anal operculum triangular, each with a stout apical seta, rather less than half the length of the valve and about six much shorter setae of varying lengths on the apical half. Oval cells, tubular spinnerets and short setae more or less uniformly distributed over the dermis.

On *Syzygium cordatum* (Myrtaceae), Inyangombi Falls, Inyanga, 15.x.39; on the leaves and smaller twigs.

This species comes close to *P. aristolochiae* Newst., from which it differs principally in the shorter and more variable lengths of the marginal spines, the band of chitinous tissue at the base of the stigmatic spines, the number of the stigmatic spines and the smaller number and size of the submarginal pores.

MOLLUSCOCOCCUS gen.n.

Pseudococcine forms in which the adult female resembles a bivalve mollusc in shape. Ventral dermis recessed and indicated by a long narrow slit shaped like an exclamation mark the edge of which is coated with a little white fibrous matter. Dorsal dermis highly chitinised, produced into a somewhat elongated cone, smooth except in the median area where it is thrown into three or four definite transverse folds. Antennae and limbs unusually close together for the size of the insect and compressed laterally. Antennae very short, stout and of 3 segments. Limbs short and relatively stout with femora swollen about the middle. Spiracles relatively large, surrounded by chitinised tissue and with numerous multilocular pores in the atrium. Anal orifice broadly oval with some 25 stout anal setae. The dorsal margin is indicated, in microscopic preparations, by a broad rim of densely chitinised tissue which extends in the form of a V from just anterior of the anal orifice. Dorsally of the chitinised lips a large broadly oval cribriform plate occurs on either side. Dorsal dermis with numerous very long setae and some scattered simple pores. Ventral dermis with numerous pores in front of the anal orifice and numerous long tubular pores in the vicinity of the chitinous lips.

Larva elongate with six segmented antennae. Limbs of normal form. Anal ring with six setae; anal lobes conspicuous. Margin with a single series of small rounded tubercular pores and short setae at intervals; dorsal dermis with four longitudinal series of similar setae.

Genotype: *Molluscococcus fibrillae* sp.n.

This genus seems to be related to *Micrococcus* but, apart from other differences, the larva of *Micrococcus* has three segmented antennae and more than six setae to the anal ring and the adult female has no cribriform plates and lacks the specialised form found in *Molluscococcus.*

Molluscococcus fibrillae sp.n. (Fig. 9).

Adult female shaped not unlike a bivalved mollusc. The texture of the dermis is smooth and of a reddish or purplish colour. The rootlet of the host plant is enveloped in a deep depression simulating an exclamation mark, this depression is edged with a little white fibrous matter. Just beyond the narrower extremity of the depression the anal orifice is discernible and on either side of the depression, towards the posterior extremity is a small black or very dark area. At a point on either side of the depression and rather nearer the anterior extremity, the dermis is thrown into three or four definite transverse folds. The dorsum is elongated conical in shape but somewhat flattened longitudinally. The ventral dermis is delicate and is apparently confined to the inward fold within the depression.

Larvae pink, elongate, with more or less parallel sides and three times as long as broad; with two caudal setae about 1/3 the length of the body.

Length of adult female, 2.5 mm.; breadth, 2.5 mm.; height, 3.5 mm.

The adult female, when prepared for microscopic examination, is more or less circular with the lips of the depression highly chitinised; these lips are fused at a point just in front of the anal orifice and thence diverge sharply. within this V-shaped area the delicate ventral tissues are situated.

Antennae and limbs unusually close together and compressed laterally. Antennae very short, of three stout segments of which the terminal segment is the longest. Terminal segment with numerous setae apically and, in addition to other setae, one long seta on both the 1st and 2nd segments.

Limbs short and relatively stout, with the femora swollen about the middle. Tarsus about half the length of the tibia. Claw relatively long with two fine digitules not extending beyond the tip of the claw. Tarsal digitules very fine, short and inconspicuous.

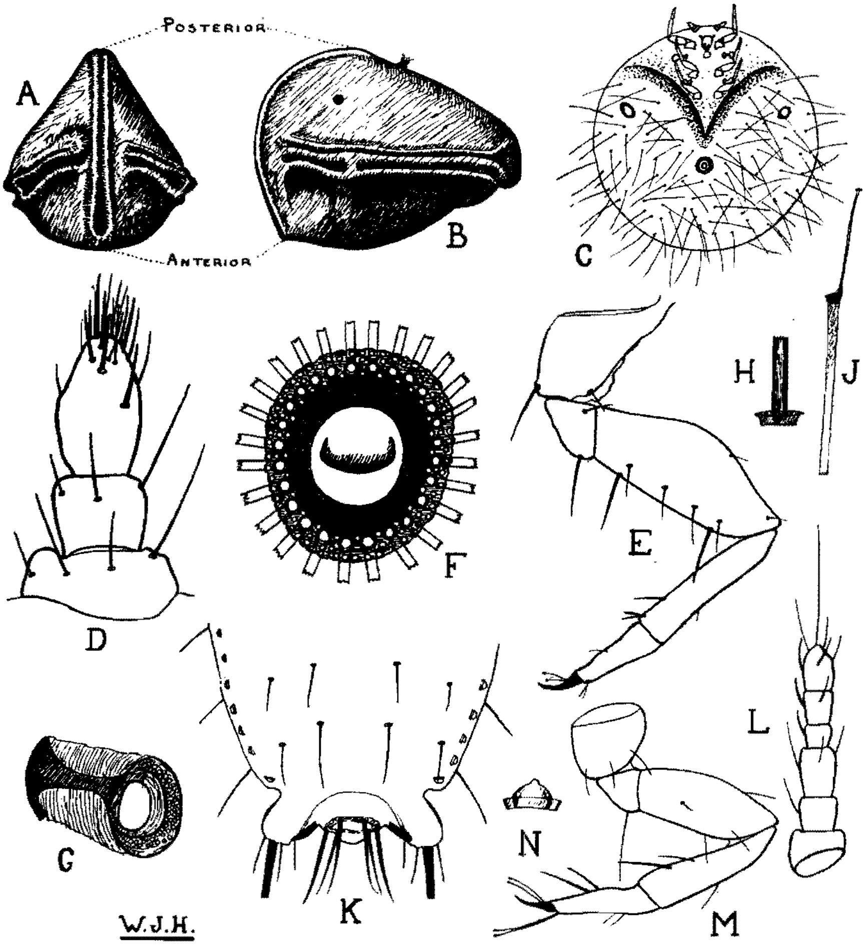

Fig. 9.—*Molluscococcus fibrillae*, sp.n.: Adult ♀. A, ventral view, x 14; B, lateral view, x 14; C, adult prepared for microscopic examination, x 14; D, antenna, x 225; E, hind limb, x 112; F. anal ring, x 340; G, spiracle, x 112; H, base of dorsal seta, x many times; J, tubular spinneret, x many times.

Larva. K, posterior abdominal segments, x 225; L, antenna, x 225; M, hind limb, x 225; N, marginal tubercle, x many times.

Spiracles relatively large, surrounded by chitinised tissue and with numerous multilocular pores in the atrium.

Anal orifice broadly oval with some 25 stout setae arising from the anal ring. The anal setae are set in a ring of tissue which carries numerous small circular pores. Length of the anal setae about 130 μ. On either side of the chitinised lips a large broadly oval cribriform plate is found; a wide rim of highly chitinised tissue surrounds the plate which is of very fine mesh indeed. Dorsal dermis with numerous very long setae, which attain a length of between 500 and 600 μ, and some scattered simple pores. Ventral dermis with numerous multilocular pores in front of the anal orifice and in a more or less median position. Marginally, in the vicinity of the chitinous lips, numerous long tubular pores occur. Scattered setae, about 44 μ in length, are also found on the ventral dermis.

Larva elongate, with 6-segmented antennae of which the 3rd segment is the longest, the 6th next longest and the 4th the shortest. Limbs normal with relatively long and straight claw. Tarsal digitules fine, long and minutely knobbed; ungual digitules similar but not quite so long although extending beyond the tip of the claw. Anal ring with six setae. Anal lobes conspicuous, each carrying a very long and stout seta, nearly five times as long as the anal setae, and two or three very much shorter setae. An area on the inner surface of the lobes is strongly chitinised and the outer edge also generally shows slight but definite signs of chitinisation. Margin with a single series of small pores of the form shown in Fig. 9N and short setae at intervals, similar setae occur in four longitudinal series on the dorsal dermis.

On *Hyparrhenia filipendula* (Gramineae), Marendellas, 9.iii.28; Headlands, 10.iii.28; Inkomo, 26.iii.28 and South Marendellas, 23.ii.36: on the rootlets.

The specimen selected as "type" is a young adult female in which the chitinisation of the tissues has not yet set in.